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# OBSERVATIONS ON THE TRYPANOCIDAL DRUG PHENIDIUM CHLORIDE (PHENANTHRIDINIUM 897)

BY

M. L. BURDIN, W. PLOWRIGHT AND H. S. PURCHASE

VETERINARY RESEARCH LABORATORIES, KABETE, KENYA

Investigations at this laboratory have shown that parenteral administration of dimidium bromide (1553) to the bovine regularly produces a delayed toxic effect at dosages above 1 mg. per kg. bodyweight and sometimes even at this level (Burdin & Plowright, 1951). The toxicity can be detected by serial weighing of the animals, examination of liver biopsy material and by certain biochemical estimations on blood. Although the literature contains many references (Bell, 1945; Randall & Beveridge, 1946, 1947; Stewart, 1947; Evans, 1948; Wilde, 1949) to the delayed photosensitisation following the field use of this drug, the unexpected liver damage noted at Kabete in animals apparently normal on clinical examination pointed to a more fundamental and regular harmful side-effect attributable to dimidium bromide medication. A connection between the two manifestations of toxicity has not been proved but liver lesions have been demonstrated in all cases of photosensitisation investigated in Kenya and it is reasonable to suppose that they are intimately associated; the skin lesions, under suitable environmental conditions, being secondary to the liver affection (see Clare, 1950).

It seemed essential to investigate the toxicity of phenidium chloride (phenanthridinium 897) from the theoretical point of view, to attempt to throw light on the toxic potentialities of phenanthridinium compounds in general and from the practical angle also, in case it should be necessary to revert to the use of this drug in the field. Photosensitisation has never been reported as a complication following the use of phenidium chloride and the only reference to any toxicity trials with this drug are those reported by Carmichael and Bell (1944) where intravenous injection of 3·5 and 4·5 mg. per kg. produced only immediate transitory symptoms.

Yearling Zebu heifers of the Boran type were used exclusively in the experiments reported in this paper.

## I. ACUTE TOXICITY FOLLOWING INTRAVENOUS INJECTION OF PHENIDIUM CHLORIDE

One per cent. w/v solution in distilled water was given by slow injection into the jugular vein. The following symptoms were noted immediately the drug was administered:—

*Heifer No.* 14, 373 *lb.*, 5 *mg. per kg. intravenously.*—Slight inco-ordination of gait and smacking of the lips for a few minutes after the injection. The animal then appeared normal.

*Heifer No.* 6, 429 *lb.*, 5 *mg. per kg. intravenously.*—This animal became recumbent and appeared dazed; respiration slowed for a minute then returned to normal. She remained in a somnolent state with head in the typical "milk fever" attitude and 15 minutes later got on her feet voluntarily and was normal.

*Heifer No.* 10, 406 *lb.*, 6 *mg. per kg. intravenously.*—The heifer went down immediately after the needle was withdrawn and after convulsive muscular contractions respiration ceased. She lay for two minutes and then artificial respiration was applied by pressure in the flank with the foot; this was continued for three minutes after which natural respiration had restarted. Six and a half minutes after inoculation the animal sat up on her brisket, breathing rapidly, and finally stood up two and a half minutes later.

*Heifer No.* 7, 413 *lb.*, 6 *mg. per kg. intravenously.*—This was a very wild animal, restrained with difficulty. After the injection of the drug had been given she went down on her forelegs and remained in a dog-feeding position for two minutes, then fell flat, breathing deeply, for a further three minutes; suddenly, however, she sprang to her feet, appeared quite normal, and became even more wild than before inoculation.

*Heifer No.* 28, 366 *lb.*, 7 *mg. per kg. intravenously.*—Following the administration of the dose this animal dropped straight down and respiration ceased. Artificial respiration was applied for five and a half minutes before natural breathing was started. She then stood, staggering from side to side and was unnaturally ferocious for 10 minutes.

*Heifer No.* 1524, 441 *lb.*, 10 *mg. per kg. intravenously.*—This animal dropped down immediately the injection was completed and after a few convulsions respiration ceased and the corneal reflex was abolished. The heart action stopped after three minutes of attempted resuscitation. On *post-mortem* examination an enlarged spleen and red-staining of the kidney cortex were the only abnormalities noted.

### DISCUSSION

These limited observations, together with those of Carmichael and Bell (1944), indicate that the maximum dose which can be given by the intravenous route with any safety is in the region of 5 mg. per kg. It is considered that the two animals revived by artificial respiration would have succumbed had not prompt resuscitative measures been taken. The main immediate toxic effect following intravenous inoculation of large quantities of this drug appears to be on the respiratory centre together with some parasympathomimetic action; the latter is not as marked as when using antrycide.

## II. TRIALS FOR TOXICITY AT DOSAGE NEAR THE THERAPEUTIC LEVEL

Thirty-three Boran-type Zebu heifers were used in these experiments and kept out at pasture with the five survivors of the toxicity trials following intravenous administration just described.

The five survivors were formed into one group and the 33 fresh heifers were grouped at random, receiving treatment as recorded in Table I.

Table I

Dose and Route of Inoculation

| Group number | Number of animals used | Dosage | Route |
|---|---|---|---|
| I | 6 | 1 mg. per kg. phenidium chloride | Subcutaneous |
| II | 6 | 2 " " " | " |
| III | 6 | 3 " " " | " |
| IV | 6 | 4 " " " | " |
| V | 3 | One at 7 mg. per kg., two at 8 mg. per kg. | " |
| VI | 5 | Two at 5 mg. per kg., two at 6 mg. per kg., one at 7 mg. per kg. These are the five survivors from Experiment I already described | Intravenous |
| VII | 6 | Controls | — |

*Technique.*—A 1 per cent. w/v solution of phenidium chloride was used, made up in boiling distilled water and cooled to room temperature. Filtration was not necessary. All injections were given subcutaneously behind the scapula, but not more than 50 c.c. were injected at any one site; massage followed each injection.

The animals in the intravenous group were injected three weeks before the subcutaneous groups but data are recorded in this paper as days *post inoculation* in each case.

Bodyweight was recorded weekly and all the animals were bled at the same time.

*Biochemical Estimations.*—At weekly intervals the van den Bergh and Fouchet tests were carried out on the bloods and serum alkaline phosphatase and haemoglobin were estimated by the methods previously referred to by Burdin and Plowright (1951).

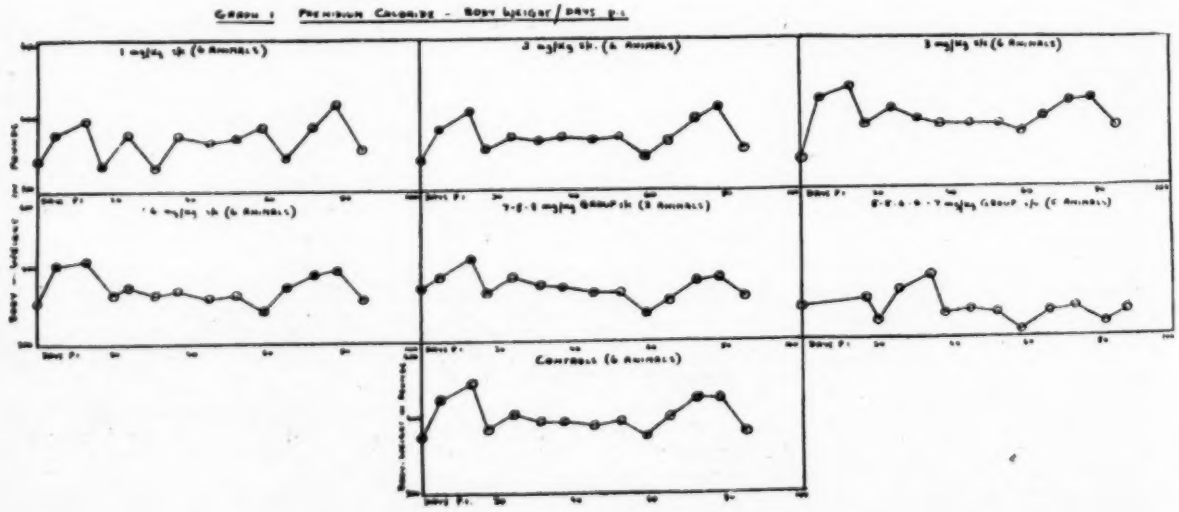
*Pathological Observations.*—Liver biopsies were performed on 15 of the 38 animals on 76 occasions as recorded in Table II. The technique used was that already described by Burdin and Plowright (1951). The required quantity of tissue was obtained successfully on every occasion. Material was examined histologically as frozen sections stained by Sudan III or IV and counter-stained by haematoxylin.

Table II

Details of Biopsies Carried Out

| Number of animal | Dose "897" | Route | Days post inoculation | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 32 | 38 | 45 | 46 | 52 | 53 | 59 | 60 | 66 | 67 | 72 |
| 19 | 1 mg. per kg. | Subcutaneous | | * | | | * | | | * | | * | |
| 34 | 1 " | " | | * | | * | | * | | * | | * | |
| 25 | 2 " | " | | * | | * | * | | | * | | * | |
| 15 | 2 " | " | | * | * | | * | | | * | | | |
| 27 | 3 " | " | | * | * | | | * | | * | | * | |
| 9 | 3 " | " | | * | | * | | | | * | | * | |
| 23 | 4 " | " | | * | | | * | | | * | | * | |
| 26 | 4 " | " | | * | | * | | * | | * | | * | |
| 14 | 5 " | Intravenous | * | * | * | | * | | | | | | * |
| 6 | 5 " | " | | * | | * | | * | | | * | | * |
| 10 | 6 " | " | | * | * | * | | * | | * | | * | * |
| 7 | 6 " | " | | * | * | * | | * | | * | | * | * |
| 28 | 7 " | " | | * | * | * | | * | | * | | * | * |
| 17 | Control | | | | * | | * | * | | | * | | |
| 21 | " | | | * | | | * | * | | | * | | * |

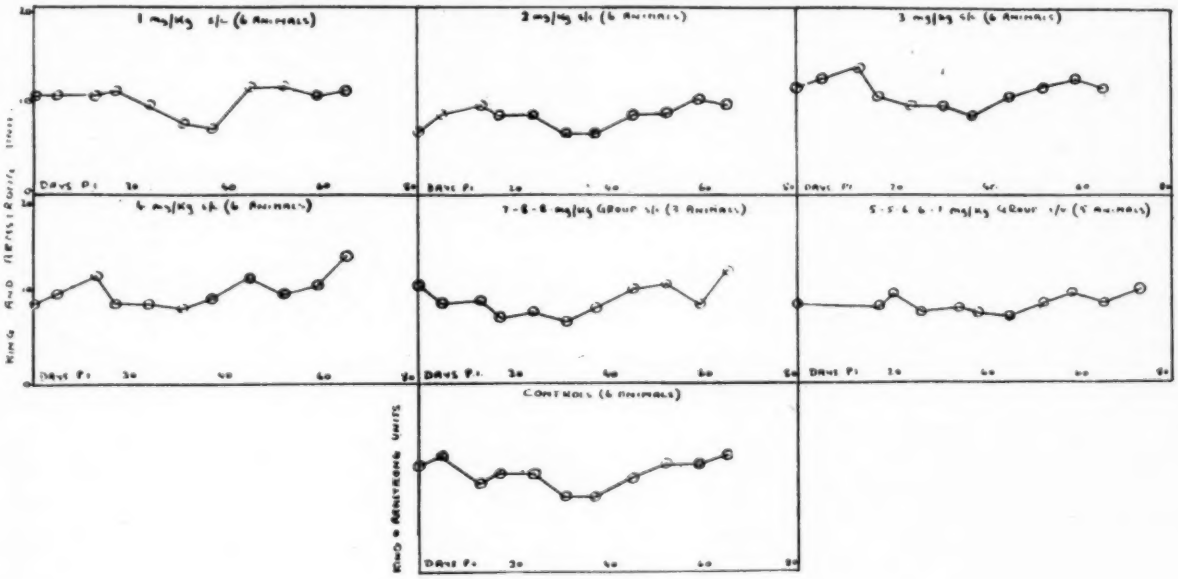
*Clinical Observations.*—Only one animal in this experiment showed any sign of ill health (No. 37) and this proved to be a fatal case of redwater. The animals were weighed at regular weekly intervals and no loss of weight was recorded, neither was there any jaundice. The comparative data are given in Graph 1 and it will be noted that all the treated animals behaved similarly to the normal controls.



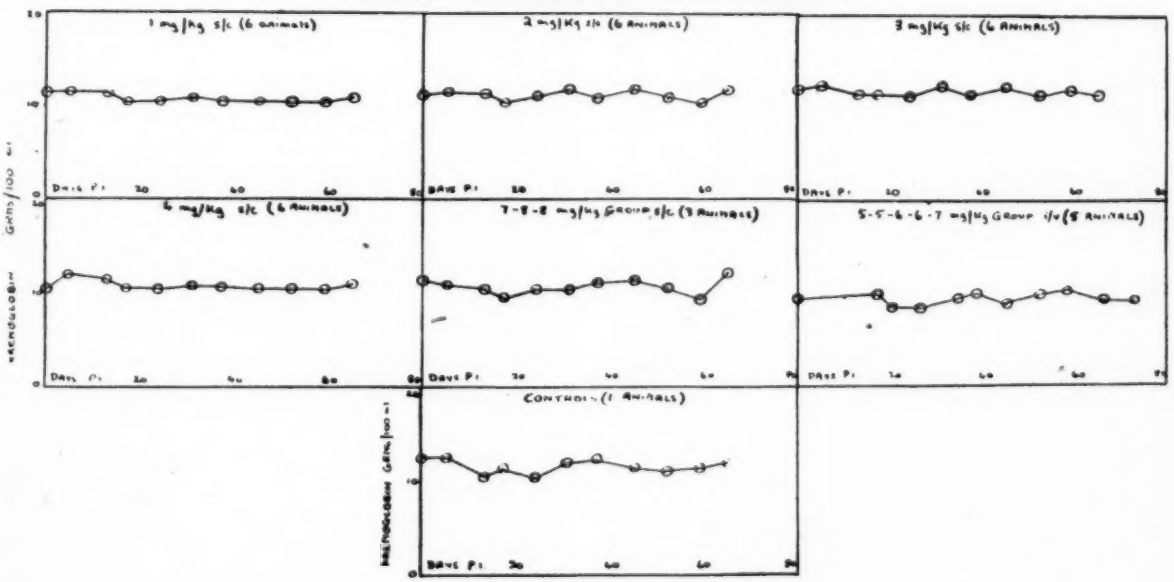
*Biochemical Observations.*—Only one animal, and then only once, gave a positive van den Bergh reaction and this animal, No. 37, was also positive to the Fouchet test on that day. No increase in the serum alkaline phosphatase was detected in any group during the period *post inoculation* when one would have expected it to occur if the animals had been treated with dimidium bromide. The results may be seen in Graph 2. Haemoglobin values remained normal and are recorded in Graph 3.

*Pathological Observations.*—No pathological changes which could be attributed to the drug were found in liver biopsy samples collected at various times during these observations.

GRAPH 2 PHENIDIUM CHLORIDE — SERUM ALKALINE PHOSPHATASE


1 mg/kg s/c (6 Animals)
2 mg/kg s/c (6 Animals)
3 mg/kg s/c (6 Animals)
4 mg/kg s/c (6 Animals)
7-8-8 mg/kg Group s/c (3 Animals)
5-5-6-6-7 mg/kg Group s/c (5 Animals)
Controls (6 Animals)
Days P.I.

GRAPH 3 PHENIDIUM CHLORIDE — HAEMOGLOBIN/DAYS P.I.


1 mg/kg s/c (6 animals)
2 mg/kg s/c (6 Animals)
3 mg/kg s/c (6 Animals)
4 mg/kg s/c (6 Animals)
7-8-8 mg/kg Group s/c (3 Animals)
5-5-6-6-7 mg/kg Group s/c (5 Animals)
Controls (6 Animals)
Days P.I.

## Discussion

Following the administration of phenidium chloride there was no evidence of the delayed liver damage which is so characteristic a sequel of dosing with dimidium bromide. Brownlee *et al.* (1937) suggested that these two drugs should produce the same toxic effects when given at equivalent therapeutic dose levels, and stated, therefore, that for comparison the level of phenidium chloride should be three times that of dimidium bromide. If this argument is accepted, then from these observations on dimidium bromide one would expect occasional severe toxicity and some loss of weight when phenidium is used at 3 mg. per kg. and definite signs of liver damage and marked loss of weight at 6 mg. per kg. This has not been observed and although it would be desirable to try out phenidium at even higher dosage it is reasonable to deduce that the small change in the chemical structure of phenidium relative to dimidium has deprived the former of the specific toxicity which is evident in the latter. The change in anion from bromide to chloride is almost certainly not of any significance when this drug is used by parenteral injection, so that the positioning of the two amino groups on the benzene rings with the possible influence on protein absorption which they effect, must be the important factor. Observations have now been made on two more phenanthridinium compounds, three further drugs are under test and it is hoped that it will be possible in later publications to make certain generalisations affecting this problem.

As phenidium has proved, in these critical trials, to be entirely free of the undesirable delayed toxic effects which are now known to be intrinsically associated with the administration to bovines of dimidium bromide at therapeutic levels, it is a great misfortune, from the safety point of view, that the older phenidium has been replaced by the toxic dimidium in the treatment of bovine trypanosomiasis. It must be emphasised, however, that dimidium has been extensively used as a therapeutic agent in certain areas of Africa, especially in the southern portion, without any obvious harmful after-effect, but had critical, comparative and detailed histological and biochemical investigations over a sufficient period, together with accurate weighings, been undertaken when this compound was first studied it is certain that the associated liver damage and loss of weight would have been appreciated more fully and much earlier. There is no doubt that damage to the liver is interlinked with the photosensitisation which manifests itself, from time to time, in certain parts of Africa. It follows, therefore, that phenidium, which does not damage the liver even at higher than therapeutic levels, is unlikely ever to be associated with photosensitisation. Where the choice lies between dimidium and phenidium, the question to be faced is, is the superior trypanocidal activity of dimidium sufficient to justify using it in preference to phenidium, which is not associated with any damage to the liver?

## Summary

(1) Six heifers were given phenidium chloride intravenously at doses varying from 5 to 10 mg. per kg. All suffered from immediate shock. Only one, however, failed to recover and that had received 10 mg. per kg.

(2) Twenty-seven Zebu heifers were given phenidium chloride subcutaneously at varying dosages up to 8 mg. per kg. These animals survived.

(3) No general lasting ill effects, other than acute shock when large doses were given intravenously, were noted clinically in any of the 32 animals treated with various amounts of phenidium chloride, neither was there any loss of weight. No evidence of damage to the liver was found in the liver biopsy material examined histologically nor did biochemical tests on blood during the ensuing 73 days suggest that any functional harm had been caused by this drug.

*Acknowledgments.*—We are grateful to Miss B. Ellis, who carried out a large number of the biochemical determinations. This paper is published with the permission of the Director of Veterinary Services, Kenya.

## References

Bell, F. R. (1945.) *Vet. Rec.* **57.** 449.
Brownlee, G., Goodwin, L. G., & Walls, L. P. (1937.) *Ibid.* **59.** 518.
Burdin, M. L., & Plowright, W. (1951.) In press.
Carmichael, J., & Bell, F. R. (1944.) *J. comp. Path.* **54.** 49.
Clare, N. T. (1950.) MS. of review article "Pathogenic Photosensitisation of Domestic Animals" by courtesy of Director, Commonwealth Bureau of Animal Health.
Evans, J. T. R. (1948.) *Vet. Rec.* **60.** 418.
Randall, J. B., & Beveridge, C. G. L. (1946.) *Ibid.* **58.** 398.
——— & ———. (1947.) *Ibid.* **59.** 224.
Stewart, J. L. (1947.) *Ibid.* **59.** 462.
Wilde, J. K. H. (1949.) *J. comp. Path.* **59.** 48.

## Minister Opens "Experimental" Slaughterhouse

Opening the Government "experimental" slaughterhouse at Guildford, Major Lloyd George, the Minister of Food, said that for many years past there had been general agreement about the need for experimental and demonstration slaughterhouses of this nature. But for the war there would probably have been provided through the Livestock Commission under the Livestock Industry Act of 1937. The Government which brought in that Act established the principle that the slaughtering industry should be put on a similar basis to other important industrial and agricultural activities which for many years had had some Government-sponsored research, experimental and demonstration centres.

The purpose of this slaughterhouse, and of the second "experimental" establishment to be built at Farnham, explained the Minister, was to direct research towards improvements in equipment, slaughtering techniques and standards of hygiene; to examine problems of providing adequate meat inspection services; and to provide a demonstration centre for inspection by representatives of local authorities and organisations connected with slaughtering.

The premises and equipment had been designed to carry out "line dressing" on a scale suitable to conditions in this country, said Major Lloyd George. They were laid out so that all the operations would be under one control, as opposed to the principle of individual butchers slaughtering their own animals in different parts of the premises, a system that had been followed by the Ministry during the meat rationing scheme. This, however, must not be taken as an indication that any decision had been reached that this would be the pattern of the long-term slaughtering policy. If at the end of the control scheme there was a return to individual slaughtering the building could be adapted for the purpose.

The Minister pointed out that everything had been done to facilitate the humane handling and treatment of animals. The lairages were well equipped and there was ample grazing land nearby. Provision was made for the segregation of injured animals and any that were apparently diseased. Working conditions were the best possible and the equipment would avoid much of the heavy manual work hitherto associated with slaughterhouses.

The experience gained had been of great value in getting ahead with the building of new slaughterhouses at Canterbury, Grimsby and Swindon, places where it had been decided that additional slaughtering capacity must be provided as soon as possible to handle the stock coming forward. Day-to-day experience might lead to further improvements and these would be noted for the building of future slaughterhouses.

# DISEASE IN POULTRY ASSOCIATED WITH *STREPTOCOCCUS ZOOEPIDEMICUS*

BY

J. C. BUXTON

VETERINARY INVESTIGATION LABORATORY,
NOTTINGHAM UNIVERSITY, SCHOOL OF AGRICULTURE,
SUTTON BONINGTON, LOUGHBOROUGH

Infections in domestic poultry with streptococci would seem to be comparatively rare and there are few records of such disease in the literature of the past half century. In America and Europe, however, clinical streptococcosis ranging from acute and rapidly fatal disease with high mortality to a more chronic manifestation in which the majority of birds become affected with "sleeping sickness" has been reported in a few instances, although there seems to be no record of the condition having appeared previously in Britain in any form.

Avian streptococcal infection was first reported in America in 1902 by Nörgaard and Mohler, who described an apoplectiform septicaemia of fowls in which 220 birds out of a total of 240 died over a period of four months, the causal organism being a short chain streptococcus. The first recorded account of the disease in Europe was given by Dammann and Manegold in 1905. These authors encountered a chronic disease of fowls in Westphalia in which only 8 per cent. of deaths occurred in the affected flock, although many of the birds were dull and sleepy. An organism which was named *Streptococcus capsulatus gallinarum* appeared to be responsible for the condition. Chronic disease was observed also by Kernkamp (1927) and by Edwards and Hull (1937), who recovered haemolytic streptococci from affected fowls. Acute outbreaks of streptococcosis have also been recorded by Greve (1908) and by Magnusson (1910) as well as by Genest and Nadeau (1944), who studied an outbreak in Canada which spread to 20 farms and for which they recognised *Str. zooepidemicus* as the causal organism.

In the early spring of 1951 acute disease occurred in a flock of about 250 pure bred Light Sussex fowls. In many cases deaths took place suddenly without prior symptoms being shown and birds were found dead on the floor of the house in the mornings. In cases in which symptoms were observed there was diarrhoea with the passage of liquid faeces and discharge from the nostrils. After four weeks from the beginning of the outbreak the disease appeared to pass into a more chronic phase, at which time the birds were dull and pale around the face. There was some evidence of scouring and noticeable discharge from the nostrils in many members of the flock. The possibility of the flock being affected with fowl pest was ruled out independently of the present investigation.

An interesting symptom which was apparent in many of the fowls in the chronic phase of the disease consisted of a marked thickening of the neck, often throughout the whole of its length, which, upon palpation, appeared to be fairly firm and to resemble a purulent rather than an oedematous lesion.

Losses and symptoms during the earlier part of the outbreak were confined exclusively to adult birds over six months of age on free range. Two batches, each of about 50 chicks, which were housed in movable arks in the same field, showed no evidence of illness during the first six weeks, but later a small number became unthrifty. However, there was no evidence in these birds of acute disease, diarrhoea and respiratory symptoms being absent.

## DIAGNOSIS

### *(a) Autopsy*

*Post-mortem* examinations were carried out on the carcases of 10 adult birds which either had died or had been slaughtered, as well as upon three unthrifty chicks, about six weeks of age.

Upon opening the bodies the most marked lesion in most of the adult birds consisted of an area of advanced abscess formation in the region of the neck, where a well-marked purulent track ran, in some cases, along the entire length of the neck, and which contained a large quantity of solid or semi-solid pus. The lesion evidently was associated with heavy infection of the cervical air sacs. In all birds there was marked tracheitis, accompanied in some cases by petechiation of the larynx and the presence of excess mucus in the trachea, together with pneumonia and general congestion of the lungs. The livers were slightly enlarged, hard and unyielding and showed some mottling of the surface and substance. In one carcase the liver was about one-and-a-half times the normal size and very pale. In two of the birds the cardiac muscle showed petechiation, but in general the hearts exhibited little change from the normal. The spleens, in most cases, were enlarged and congested, having assumed a particularly deep purple colour. Little pathological change had taken place in the ovarian tissue of the affected birds, but in every instance the kidneys showed great congestion and hyperaemia.

Edwards and Hull found exudative peritonitis as a constant feature at autopsy, but in the outbreak now recorded this lesion was present in only two bodies and was advanced in both cases with serous fluid in the abdominal cavities and the formation of a gelatinous film over the organs. In one bird the wattles were swollen and were found to be filled with pus, whilst in another there was a purulent arthritis of one hip joint.

*Post-mortem* examinations conducted upon three unthrifty chicks aged about six weeks revealed thickening of the walls of the abdominal air sacs, with excess pericardial fluid. In two birds the livers were congested and showed multiple foci resembling those of miliary tuberculosis.

### *(b) Bacteriological Examinations*

*Streptococcus zooepidemicus* was recovered in great numbers from nearly all diseased organs of adult birds. Pus from infected cervical air sacs and from the inflamed laryngeal regions yielded the organisms in pure culture from all cases and the streptococci were recovered also in different carcases, from peritoneal fluid, heart, liver, spleen and lungs. In spite of the similarity which existed between lesions in the adult birds and those in a few of the young chicks on the farm, no significant organisms could be recovered from the latter on artificial culture. In addition to *post-mortem* material, *Str. zooepidemicus* was obtained from the tracheal swab of one out of four live birds selected at random on the premises.

Diseased material was sown on to the surface of ox-blood-agar plates and incubated at 37° C. for 18 to 48 hours. The streptococci which grew produced small almost translucent colonies with characteristic wide zones of beta-haemolysis and well-marked partial lysis at the perimeter of each cleared area. The organisms also showed spectacular and well-defined haemolytic growth on Edwards's medium, where they failed to take up the dye, remaining as grey colonies on the surface of the medium. Precipitin tests were carried out, using acid extracts of the streptococci against

group-specific streptococcal antisera, and well-marked reactions took place with group C antiserum within 10 minutes in every case. Tests undertaken with antisera of other streptococcal groups yielded negative results.

There is a close relationship between *Str. zooepidemicus*, the group C streptococci of human origin and *Str. equi* (the causal agent of strangles). The cultural habits of these three members of the group are similar and their differentiation is based upon their action on trehalose and sorbitol. In general, the human strains of group C streptococci are distinguished by fermenting trehalose, but not sorbitol, whilst the majority of those from animal sources ferment sorbitol, but not trehalose, with the exception of *Str. equi*, which ferments neither carbohydrate. Biochemical tests were carried out on four strains of streptococci with the following results: positive to lactose, salacin, saccharose and sorbitol; negative to mannite, raffinose, inulin and trehalose; litmus milk, acid; methylene blue milk, 1/20,000, slight reduction.

### Method of Infection

From the information obtained there existed little doubt that the disease had been brought about by infection of the birds with *Str. zooepidemicus* and it remained to attempt to ascertain the method by which the infections had taken place. Conflicting views have been expressed by previous workers on this point since Hudson (1933) believed that the condition probably was established in the flock by the introduction of carrier birds and that the portal of entry was by way of the nasal cavity rather than by the alimentary route, whilst Genest and Nadeau (1944), although they suspected that milk from cows affected with mastitis may have been the cause of *Str. zooepidemicus* infection in fowls, were not able to recover the organisms from suspected milk.

### Experimental Inoculations

Enquiry on the farm showed that, a short while before disease began in the fowls, one of the small number of cows kept on the premises had developed acute mastitis in one quarter and that the milk had been fed to the fowls. At the time of the investigation the cow had been treated with penicillin and disease had long subsided, but since outbreaks have been recorded of bovine mastitis caused by *Str. zooepidemicus* (Buxton, 1949), samples of milk were taken and subjected to cultural tests. Results were negative.

*Feeding of infected milk.*—In order to test the possibility that the disease might have been milk-borne, inoculation experiments in fowls were carried out with milk which had been infected artificially with the strain of *Str. zooepidemicus* obtained from the bodies of diseased fowls. A small quantity of 18-hour broth culture of the streptococci was seeded into sterilised milk and this was incubated until plate counts on blood agar showed that approximately 10,000 organisms to the cubic cm. were present in the milk. This assessment was made by spreading 0·1 c.c. of inoculated milk on to the surface of blood agar plates at intervals and counting the resulting colonies of streptococci following overnight incubation. The infected milk was inoculated *per os*, in quantities of 5 c.c. at a time, into two experimental fowls each day for five days and into two further fowls every other day for 10 days. None of the inoculated fowls exhibited symptoms of disease for a period of two weeks following the last inoculation and at subsequent *post-mortem* examination there were no lesions of disease and no significant organisms could be recovered on culture.

*Inoculation by the nasal route.*—Although Hudson was able to demonstrate the localisation of infection in two experimental birds following intranasal inoculation, he observed that, in some birds, such methods produced only carriers of the disease. In an attempt to test the nasal route as a method of infection in the present outbreak, 1 c.c. quantities of 24-hour glucose broth cultures of *Str. zooepidemicus* were instilled into the nostrils of three experimental fowls daily for five days. No symptoms of disease were produced, neither could streptococci be recovered on culture from any organs following slaughter of the birds.

*Intraperitoneal inoculation.*—One experimental fowl was given an intraperitoneal injection of 0·5 c.c. of a 24-hour glucose broth culture of *Str. zooepidemicus*. It showed dullness and inappetence on the 11th day, which had increased to symptoms of acute disease by the 15th day following inoculation. *Post-mortem* examination revealed advanced fibrinous peritonitis, degeneration of the ovary, hypertrophy of the kidneys and tracheitis with petechiation of the larynx. The streptococci were recovered without difficulty from all diseased organs.

*Intramuscular inoculation.*—One experimental fowl died on the fifth day following the intramuscular inoculation of 1 c.c. of 24-hour broth culture of the streptococci. At autopsy there was evidence of general fever, with advanced myocarditis and pericarditis, together with congestion of the liver and inflammation of the muscles of the legs and breast. Streptococci were recovered from heart blood, trachea, lungs, intestines and spleen.

There seems to be little doubt that variable degrees of resistance are shown by individual birds to invasion with *Str. zooepidemicus* and it is probable that the occasional carrier bird may be responsible for disease in flocks. Avian streptococcosis is rare, however, and only very few outbreaks have been recorded during the last 50 years. It may be, as Genest and Nadeau suggest, that the higher body temperature of the avian species has an attenuating effect upon the streptococci and that this accounts for the frequent failures to transmit the disease experimentally. This might account also for the dissimilarity in symptoms which has been observed by different workers, and in the outbreak under review it was noteworthy that the disease passed fairly quickly into a chronic phase, although the stage of "sleeping sickness" as the main symptom was not reached. A further point of interest in this outbreak was provided by the fact that young birds appeared to possess a greater amount of resistance than adults. This observation has been made by previous workers also, but no satisfactory reason for it can be given. Once the infection has become established in a flock, it seems probable that the respiratory tract is the most likely route of entry for infection and this theory is supported to some extent by the frequency with which infected respiratory tracts were present in diseased birds. Although, in this investigation, the failure to demonstrate a venue of infection was disappointing, it is possible that the number of subcultures of the streptococci which had to be made before inoculation experiments could be undertaken accounted for the failure to reproduce lesions in experimental birds. Certainly there is no doubt that *Str. zooepidemicus* under field conditions of disease in domestic animals is a powerful pathogen and may give rise to acute disease, but the question relating to the exact method by which infection gained entry to the farm and the main route of spread must remain unanswered.

### Summary

An account is given of what is believed to be the first outbreak to be recorded in the British Isles of acute infection in poultry with *Str. zooepidemicus*.

The disease ran an acute course for about four weeks in a large poultry flock before passing to a chronic phase.

Total losses in the flock amounted to about 120 birds out of a total stock of 250.

In the early stage of the disease birds were found dead for no accountable reason, but later there were symptoms of diarrhoea and nasal catarrh. Chronic disease ensued after the fourth week.

*Post-mortem* examination showed, for the most part, well-marked congestive lesions in livers and spleens with tracheitis and infection of the air sacs as a consistent feature; *Str. zooepidemicus* was recovered in great numbers from nearly every lesion.

Experimental inoculations failed to demonstrate a route of infection, although it is thought probable that the organisms gained entry by means of the respiratory tract and that carrier birds acted as a source of primary contamination.

*Acknowledgment.*—The author is grateful to Mr. G. Salt, Veterinary Laboratory, Weybridge, for kindly confirming the identity of *Str. zooepidemicus*.

### References

Buxton, J. C. (1949.) *Brit. Vet. J.* **105.** 107.
Dammann, C., & Manegold, O. (1905.) *Dtsch. Tierärztl. Wschr.* **13.** 577.
Edwards, P. R., & Hull, F. E. (1937.) *J. Amer. vet. med. Ass.* **91.** 656.
Genest, P., & Nadeau, J. E. (1944.) *Canad. J. comp. Med.* **8.** 342.
Greve, L. (1908.) *Dtsch. Tierärztl. Wschr.* **16.** 213.
Hudson, C. B. (1933.) *J. Amer. vet. med. Ass.* **82.** 218.
Kernkamp, H. C. H. (1927.) *Ibid.* **70.** 585.
Magnusson, H. (1910.) *Zbl. Bakt.* **56.** 411.
Nörgaard, V. A., & Mohler, J. R. (1902.) *U.S., Dept. Agric. Bur. Anim. Indust. (Wash.) Bul.* 36.

## CONTROL OF DOGS

The Minister of Agriculture and Fisheries, Sir Thomas Dugdale, accompanied by the Parliamentary Secretary (Commons) Mr. G R. H. Nugent, recently met representatives of the R.S.P.C.A., Canine Defence League, Our Dumb Friends' League, The Central Council in Scotland of the Societies for the Prevention of Cruelty to Animals and the Universities Federation for Animal Welfare to discuss the losses caused by the worrying of livestock by dogs.

The Minister explained that he was very much concerned at the losses caused to the nation's food supply by the worrying of livestock, particularly sheep and poultry. The representatives of the Societies agreed that the problem was a serious and urgent one and promised their co-operation in any practicable measures for dealing with it.

The meeting discussed a number of detailed proposals designed to reduce the number of stray dogs and to secure better control and care of dogs in the countryside.

In conclusion, the Minister expressed his gratitude to the representatives of the Societies for their help and advice and said that he would announce his conclusions as soon as possible.

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### Weekly Wisdom

*What are the characteristics that make university education different from technical college education? The most important advantages of the universities would appear to be the encouragement of completely free enquiry, uninhibited by dogma; the opportunities for inter-faculty experience, and the close link, through the teachers, between the lecture theatre and the research laboratory. All these advantages are important in all faculties, but the last—the link between theory and practice—has particular relevance in the faculty of science. It is the lack of emphasis on fundamental research—not through the fault of the teachers, but through the lack of opportunities, time, and facilities—that is the main weakness of the technical colleges. Though not all would agree, and though some technical colleges provide notable exceptions, this fact is recognised as generally true.—Pharm. J.*

## CLINICAL COMMUNICATION

# A VESICULAR DERMATITIS IN POULTRY RESEMBLING "SOD DISEASE"

R. J. THOMAS,
Ministry of Agriculture, Aberystwyth,
F. T. W. JORDAN,
Veterinary Investigation Centre, Aberystwyth,
and
J. D. BLAXLAND,
Veterinary Laboratory, Weybridge.

In 1920 Newsom and Feldman described a condition in fowls in the U.S.A., which they called "sod disease." It was characterised by a vesication followed by scab formation, which occurred on the feet and legs and also, but less frequently, on the unfeathered parts of the head. The fowls affected were usually under a month old, although the disease occurred also in adults. Mortality ranged between 20 per cent. and 90 per cent. The name of the condition was derived from its occurrence in poultry ranging over unbroken prairie sod.

The condition described in this paper appears to correspond to that described by the American authors. It has not previously been reported in this country but during the past 10 years two other outbreaks have been encountered in the routine diagnosis laboratory at Weybridge.

### History and Course of the Disease

In August, 1951, the owner of an Accredited flock of 80 fowls on a general farm in Cardiganshire observed abnormality in a batch of 13 Light Sussex cockerels, which were penned on their own more than 100 yards from other poultry on the farm. The run occupied by the affected cockerels was approximately 30 yards square, one half being covered with grass and the other overgrown with weeds and brambles. One side of the run was bordered by conifers. The food of the affected birds was identical with that of other growing stock and consisted of growers' mash, boiled potatoes and fish meal or boiled rabbit.

Seven days after the first appearance of disease in the Light Sussex cockerels, one of a batch of 15 Brown Leghorn cockerels, five months old, showed symptoms and lesions of the same type and the course of the disease was the same as that in birds in the Light Sussex group. None of the other poultry in the flock developed the disease although there was a guinea-fowl running with the affected cockerels; only one of the Brown Leghorn cockerels showed symptoms of the disease although it was in pen contact with the other 14 birds.

### Symptoms

The farm was visited and the cockerels were examined five days after onset of the disease; seven of them were found to be affected. There was some loss of weight although the appetite remained good. There was reddening of the skin and swelling of the feet and metatarsal region, accompanied by lameness. The gait of the affected birds was most striking and bore a strong resemblance to the "goose step" (Fig. 1). The lesions appeared to run the following course:—

1. Localised erythema of the skin of the feet and shanks.
2. Vesication of the epithelium on either side of the toes and in the interdigital spaces (Fig. 2).

3. Rupture of the vesicles with exudation of a straw-coloured watery fluid, leaving an underlying raw surface.

4. Formation of scabs with healing in about 10 days.

One cockerel also showed a few healing lesions on the wattles and round the nostrils; another was similarly affected but round one nostril only. A few individuals showed small lesions on the head.

About four days elapsed from first appearance of erythema to the formation of scabs. The temperature of some of the affected birds was taken, and found to be normal. The remaining six cockerels in the pen developed the disease during the next seven days. During this time the birds first affected were recovering, the lameness becoming less obvious and a general improvement in body condition taking place.

FIG. 1.

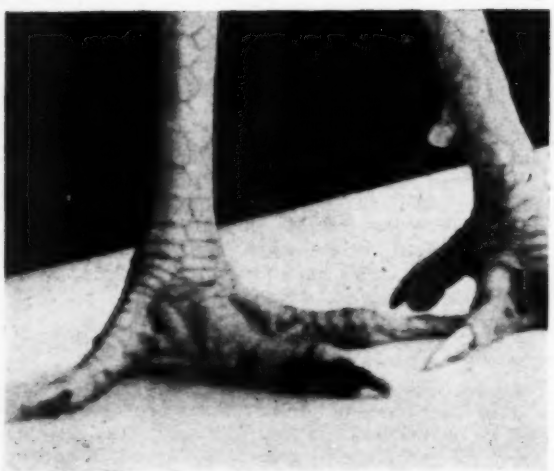

FIG. 2.

*Attempts to Transmit the Condition.*—The vesicular fluid from the lesions was collected aseptically and plated on blood and MacConkey agar but no growth was obtained after 48 hours' incubation. The same fluid was applied to the scarified skin of a guinea-pig and to the comb of an adult cockerel, and a typically affected cockerel from the farm was kept in close contact with a healthy laboratory fowl for two weeks, but these attempts to transmit the disease failed completely.

## DISCUSSION

The skin lesions on affected fowls in this and in the two similar outbreaks encountered at Weybridge resembled those described by Newsom and Feldman, but the age of the affected birds and the severity of the disease in the American outbreaks were quite different. In none of the outbreaks seen in this country has there been any mortality. The failure to isolate a causal organism or to transmit the condition and the absence of any external agent such as quicklime to explain the vesication and dermatitis, limit the possible aetiology of the condition considerably. Very little is known about the non-infectious dermatoses of poultry but it would seem that the condition described in this paper might be the result of an allergic reaction similar to that thought to cause certain skin eczemas in man and other animals. It is probable that the disease described in this paper is more common than the literature and text-books on avian pathology would suggest. Diseases in poultry seldom receive much publicity unless they are associated with severe illness or mortality.

## SUMMARY

An outbreak of vesicular dermatitis affecting the feet of cockerels is described. The lesions resembled those of "sod disease" as reported by American workers. There was no mortality and affected fowls recovered after 10 to 14 days. The condition was not transmissible and the cause is unknown.

## REFERENCE

"Diseases of Poultry." Edited by H. E. BIESTER & L. H. SCHWARTE. Second Edition. (1948.) 980.

# ABSTRACTS

### Azoturia and the "Crush Syndrome"*

The author has studied the lesions in the muscles and kidneys in cases of equine paralytic myoglobinuria, and compared them with those seen in the "crush syndrome" of man. In this syndrome, patients who have suffered severe tissue damage such as the crushing of muscles, may, after a short interval of apparent improvement, show oliguria and eventually renal failure and complete oliguria. In such human cases, the kidneys show degenerative changes in the distal segments of the kidney secretory tubules, and the formation of casts of myoglobin and haemoglobin derivatives—this lesion comprising a "lower nephron nephrosis."

The muscle lesions in the equine condition were found to be strikingly similar to those seen in "crush syndrome," but it was noted that the kidney lesions in horses were not restricted to any particular segments, but affected all parts of the nephron except the glomeruli. Changes observed in the horse kidneys included degeneration and even necrosis and sloughing of the tubular epithelium, and the presence of hyaline and pigmented casts in the tubule lumen.

Reference is made to a rare human condition of "paralytic myoglobinuria," which, as in the horse, appears to be brought on by increased muscular activity following rest.

E. C.

*"Azoturia and the "Crush Syndrome." RIBELIN, W. E. (1951.) *J. Amer. vet. med. Ass.* **119.** 284-288.

## "Effective Temperature" and the Rearing of Pigs*

Previous experiments by Howie have shown that pigs reared in an open pen in a large uninsulated building did not thrive at all well, whereas those reared in wooden ark huts were healthy and gained in weight. The greater comfort of the ark huts was thought to be responsible for this difference. Methods of comparing the cooling power of different environments on young pigs were considered, and it was decided to use the "effective temperature" as a means of comparison, "effective temperature" being that of still, saturated air in which an equivalent sensation of warmth is experienced by the subject. This places too much significance on humidity changes in the temperature zone 40° to 60° F. "Effective temperature" is the measure of the effect of an atmosphere on man, and as there was little difference in the relative humidity in the pig environments studied, it was decided to use this method for the pigs.

The experiments consisted in studying litters of pigs in three environments: (1) an open pen in a large draughty granite and concrete building, with a limited amount of straw bedding; (2) a wooden ark near to the concrete building, and with access to a run similar to that for 1: bedding was always dry, but little sunshine fell on the hut itself; (3) a hut similar to 2, but of larger capacity and in plenty of sunshine. The run was an outdoor concrete one.

The results showed it was possible to rear good pigs in a hut where the average "effective temperature" was as low as 44° F., with a range of from 33° to 55° F., and an average daily variation of 12° F., when a warm dry bed was provided. Blanket jackets made for the little pigs in the open pen and indoor-run hut did not appear to help improve the growth rate. The best environment was the hut with outdoor run (3), and the worst was the open pen (1). Charts and tables illustrate the experiments, and the authors suggest that an investigation into the effect of loss of heat from the pig through the floor is now required.

D. J. A.

* **"Effective Temperature" as a Measure of Environmental Conditions for Pigs.** McLagan, Joan R., & Thomson, W. (1950.) *J. Agric. Sci.* **40.** 367-375.

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## 2-Amino-5-Nitrothiazole as a Treatment for Blackhead in Turkeys*

2-amino-5-nitrothiazole has already been described as of value in the control of enterohepatitis (blackhead) in turkeys. The author describes further experiments using 100 six-week-old turkey poults in two groups. Each group was exposed to infection by daily contamination of the drinking water with embryonated Heterakis eggs in a mixture of chicken faeces and earth.

One group received the drug at a 0·05 per cent. concentration in the feed for a period of 44 days. At the end of this period prophylactic treatment was withdrawn from the one group to allow birds to develop clinical enterohepatitis. Sixteen days later, when deaths from blackhead had commenced, the drug was again administered in the feed at a concentration of 0·05 per cent. to test for its curative properties. This second administration was given for seven days.

The experiments can be assessed in two periods under two headings.

1. The preliminary 44 days of medication was a test of the drug's prophylactic value. During this period one bird out of 50 died of blackhead in the medicated group whereas 36 poults died in the untreated control group.

2. In the second period of the experiment when the drug was given as a curative treatment after the appearance of clinical cases of enterohepatitis, six birds died during the seven-day treatment and seven birds in the week immediately after its cessation.

The results are considered to show the high prophylactic value of the drug in that only 2 per cent. of birds medicated died of the disease, whereas 72 per cent. of the untreated group died. On the other hand, the use of 0·05 per cent. concentration shows no marked power to cure acute clinical enterohepatitis.

D. L. H.

* **Enterohepatitis (Blackhead) in Turkeys. Report of an Investigation Concerning the Value of 2-amino-5-nitrothiazole as a Prophylactic and Curative Agent.** McGregor, J. K. (1951.) *Canad. J. Comp. Med.* **15.** 144.

## QUESTIONS IN PARLIAMENT

### Foot-and-Mouth Disease

Mr. James Harrison (April 3rd) asked the Minister of Agriculture on how many farm premises there has been more than one outbreak of foot-and-mouth disease during the last 12 months.

The Joint Parliamentary Secretary to the Ministry of Agriculture (Mr. G. R. H. Nugent): Three, Sir.

Mr. Harrison: Is my hon. Friend satisfied that the interval of six weeks before the farmer can restock is long enough without risk of infection of neighbouring farms?

Mr. Nugent: Yes, Sir. My right hon. Friend is satisfied that the period is long enough. The probability is that these secondary outbreaks have occurred through migrant birds.

Mr. W. F. Deedes (April 3rd) asked the Minister of Agriculture what international machinery exists for discussion and implementing joint action here and on the Continent to combat foot-and-mouth disease.

Mr. Nugent: The International Office of Epizootics, the Organisation for European Economic Co-operation and the Food and Agriculture Organisation of the United Nations are collaborating in this matter.

Mr. Deedes: Can my hon. Friend say how actively they are collaborating on this matter, in view of the fact that many areas in the south of England, and particularly in south-east England nearest to the Continent, are obviously suffering, either through migrating birds or imported straw, from the results of what is now raging on the Continent, and will he have another look at the veterinary arrangements?

Mr. Nugent: We are not in control of the veterinary arrangements in Europe. We are making our contribution through these bodies to bring this epidemic under control. More than that we cannot do.

Mr. Philip Noel-Baker: Are these international organisations being given the funds they require to deal with these matters on an adequate scale?

Mr. Nugent: We are making our proper contribution, and, indeed, we may take credit for our Chief Veterinary Officer, Sir Thomas Dalling, having been appointed as Chief Veterinary Consultant of the F.A.O.

Mr. Godfrey Nicholson: Is there any scientific evidence that migrating birds are responsible for this disease? Surely there is a great danger of hysterical and hypothetical theories being formulated and blaming everything on an innocent party?

Mr. Nugent: I think the probability is that migrating birds are responsible.

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### Cruelty to Animals (Inspectors)

Mr. Peter Freeman (April 3rd) asked the Secretary of State for the Home Department, in view of the fact that over 1,700,000 experiments on living animals* are carried out every year, many of which without the use of anaesthetics, he will appoint one or more

* In the issue of *The Times* of April 4th, the Parliamentary Correspondent of that paper wrote: "A motion tabled in the House of Commons by Mr. Peter Freeman, Labour member for Newport, calls on the Government to provide an opportunity for a full, independent, and impartial investigation into vivisection experiments on living animals. The motion refers to over 50,000,000 such experiments which have been carried out in the last 50 years, and states that although 1,500,000 of them had been conducted for cancer research alone, deaths from cancer had increased every year during the last 50 years."

officially trained inspectors of the Royal Society for the Prevention of Cruelty to Animals or other animal welfare societies as inspectors in his Department to assure public opinion on this matter.

Sir D. Maxwell Fyfe: No. Inspectors under the Cruelty to Animals Act, 1876, are selected by open competition in common with other civil servants and I could not agree to vary this method of recruitment in favour of officers of any particular society.

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Transit of Horses

Mr. Baldwin (March 31st) asked the Minister of Agriculture whether, in view of the suffering caused to horses in transit to the Continent for slaughter, he will establish a slaughterhouse in England to deal with this traffic, so that the carcase can be chilled and sent to the Continent and the valuable by-products retained in this country.

Mr. Nugent: So far as I know, there is no evidence of traffic in the export of horses from this country to the Continent for slaughter. In any case there would be no need to establish a further slaughterhouse since adequate facilities already exist.

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Pigs (Slaughtering)

Mr. Alport (April 2nd) asked the Minister of Agriculture what compensation is available for farmers prevented from sending pigs for slaughtering, owing to foot-and-mouth standstill orders, with the result that their animals are unable to fetch maximum prices.

Sir T. Dugdale: In defining the areas in which movement of animals is restricted owing to the outbreak of foot-and-mouth disease, efforts are made to see that slaughtering facilities are included in these areas. It does happen from time to time that adequate facilities cannot be made available, but I have no power to pay compensation in respect of any consequential losses in such cases. The Diseases of Animals Act enables compensation to be paid only in respect of animals slaughtered by order of my Department.

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Dog Licence Duty

Mr. Hector Hughes (April 1st) asked the Chancellor of the Exchequer why sums received from the issue of dog licences are, in England and Wales, retained by the local authorities while sums which arise from dog licences in Scotland accrue for the benefit of the British Exchequer; and if he will take steps to secure equality of treatment in this matter.

Mr. R. A. Butler: The power to levy dog licence duty was transferred to local authorities in England and Wales by Order in Council dated October 19th, 1908, made under the provisions of Section 6 of the Finance Act, 1908. The Section did not apply to Scotland.

The Scottish local authority associations were consulted last year with a view to bringing the position in Scotland into line with that in England, but all three were opposed to any change.

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Sheep Worrying

Major Tufton Beamish (April 3rd) asked the Minister of Agriculture what further talks he has now had on the question of sheep worrying by dogs; and what new proposals he has to try to secure better control of dogs in the countryside and to ensure that the existing law is more strictly enforced and, if possible, improved.

Mr. Nugent: My right hon. and gallant Friend has had talks with the representatives of the animal welfare societies concerned. The conclusions will be announced as soon as possible.

Major Beamish: Is the Minister aware that while there is obviously no easy solution to this problem, there is very little understanding by the general public of the great damage which has been done? In 1951 nearly 11,000 sheep were killed or injured by stray dogs, and the figures are going up steadily year by year. Will the hon. Gentleman give an assurance that his right hon. Friend will look at this matter with the greatest sympathy to see what can be done?

Mr. Nugent: My right hon. and gallant Friend is well aware of the gravity of the problem. That is why he is taking this step, and he hopes to get some useful result.

Sir Herbert Williams: Why is it that this problem has developed so recently? It did not exist to such a serious extent before the war.

Hon. Members: Shortage of meat.

Mr. Ronald Bell: Is my hon. Friend aware that some farmers are being driven out of sheep rearing by the gravity of this menace from dogs, and does he realise that this situation is a real threat to food production?

# NOTES AND NEWS

## Diary of Events

April 17th.—Meeting of the Herts and Beds Division, B.V.A., at 70, Holywell Hill, St. Albans, 7.30 p.m.

April 17th.—Annual General Meeting of the East Midlands Division, B.V.A., at Sutton Bonington (School of Agriculture), 2.15 p.m.

April 18th.—Meeting of the Biochemical Society in the University of Liverpool, 11 a.m.

April 23rd.—First Annual General Meeting of the Society for the Study of Animal Behaviour, at the Wellcome Research Institute, 183-193, Euston Road, London, N.W.1, 2.30 p.m.

April 25th.—Meeting of the Mid-West Division, B.V.A., at Clifton, Bristol (Berkeley Café), 2.15 p.m.

April 25th.—Meeting of the Midland Counties Division, B.V.A., at Leamington Spa (Regent Hotel), 2.30 p.m.

April 26th.—Annual General Meeting of the Association of State Veterinary Officers, at the Royal Veterinary College, Camden Town, N.W.1, 2 p.m.; Annual Dinner, Criterion Restaurant, Piccadilly, W.1, 6.30 p.m.

June 4th.—109th Annual General Meeting of the Royal College of Veterinary Surgeons, at 10, Red Lion Square, London, W.C.1, 12 noon.

June 4th.—Annual General Meeting of the Victoria Veterinary Benevolent Fund, at 10, Red Lion Square, London, W.C.1,—immediately following the above.

June 4th to 6th.—Meetings of Committees and Council, R.C.V.S., at 10, Red Lion Square, London, W.C.1.

June 12th.—Annual Meeting of the R.A.V.C. Golfing Society, at the North Hants G.C., Fleet.

**Sept. 8th—13th.—Seventieth Annual General Meeting and Congress of the British Veterinary Association, at Harrogate.**

B.V.A. Quarterly Meetings in Edinburgh

The following are the arrangements for the quarterly meetings of the British Veterinary Association to be held in the Royal (Dick) School of Veterinary Studies, Edinburgh, on April 29th and 30th, and May 1st:—

Tuesday, April 29th:

12 noon. Home Appointments Committee.
2.15 p.m. Veterinary State Medicine Committee.

Wednesday, April 30th:

10.30 a.m. Organising Committee.
12 noon. Parliamentary and Public Relations Committee.
2 p.m. General Purposes and Finance Committee.

Thursday, May 1st:

10 a.m. Council.

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R.C.V.S. Examinations

May 7th.—R.C.V.S. Animal Management Examination. Tour commences at Edinburgh.

May 8th.—Entries for D.V.S.M. Examination due.

May 12th.—R.C.V.S. Pharmacology, etc. Examination (Revised Syllabus): Written Examination.

June 5th/6th.—D.V.S.M. Written Examinations at Edinburgh.

June 26th/27th.—R.C.V.S. Membership Written Examinations.

### Castration and Docking

The Technical Development Committee has been discussing the subjects of castration and/or docking of lambs and the castration of calves, and is now anxious to obtain views from members of the profession on various procedures.

Details are required, particularly, concerning the use of rubber ligatures for these purposes, and also for the docking of puppies. The Committee would be grateful if members interested would send in to the General Secretary a note of their experiences of methods of application and materials used, of their opinions in respect of the pain factor, and of the period taken to obtain the final result. It would also be useful if observations upon the sequelae, favourable or otherwise, could be included.

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### Guide to Veterinary Surgeons Officiating at Small-animal Shows

The above publication of the Association (No. 13) has been revised by the inclusion of additional extracts from Kennel Club show regulations, and in certain other respects. Any member of the B.V.A. can obtain a copy of the revised Guide on application to the General Secretary at 36, Gordon Square, London, W.C.1.

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## PERSONAL

Glasgow University Honours Sir Thomas Dalling

Among those distinguished in the arts and sciences whom the Senatus Academicus of the University of Glasgow have invited to receive the honorary degree of Doctor of Laws, on Commemoration Day, June 18th, is Sir Thomas Dalling, formerly Chief Veterinary Officer of the Ministry of Agriculture and Professor of Animal Pathology in the University of Cambridge.

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Readerships in the University of London

The title of Reader in Veterinary Medicine in the University has been conferred on Mr. H. R. Allen, M.R.C.V.S., and Mr. J. W. H. Holmes, M.R.C.V.S., in respect of the posts held by them at the Royal Veterinary College.

The title of Reader in Veterinary Surgery in the University has been conferred on Mr. G. H. Arthur, M.V.SC. (LIV.), M.R.C.V.S., and Mr. G. C. Knight, F.R.C.V.S., in respect of the posts held by them at the Royal Veterinary College.

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*Birth.*—Harrison.—On March 20th, 1952, at Redruth Hospital, to Eira, wife of Val A. Harrison, M.R.C.V.S., a daughter—Susan Jane.

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*Marriage.*—Smith—Anders.—On April 2nd, 1952, at All Saints Parish Church, Upholland, nr. Wigan, G. Sumner Smith, elder son of Mr. and Mrs. A. E. S. Smith, of Wigan, Lancs, to Nora, eldest daughter of Mr. and Mrs. A. Anders, of Orrell, nr. Wigan.

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## R.C.V.S. OBITUARY

Temple, Allan, Capt. late R.A.V.C., 2, Torrington, West Cliff Road, Ramsgate, Kent. Graduated London, May 4th, 1916. Died March 13th, 1952; aged 59 years.

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## LEGAL NOTES

Posed as Veterinary Surgeon

Pleading guilty to taking the title of a veterinary surgeon, without being registered, Richard Whittington Potts (33), of Moor Lane, Cranham, was put on probation for two years at Romford on Thursday, March 27th. He was ordered to pay £2 6s. costs.

Mr. A. Hunt, prosecuting for the Royal College of Veterinary Surgeons, said (states the *Essex Recorder*) that on December 3rd the defendant called at a farm in South Ockendon and asked Mrs. Wiffen, wife of the occupier, to be allowed to inspect her pigs in connection with foot-and-mouth disease which was prevalent at the time. He went into the sties and chased the pigs about and then told Mrs. Wiffen the animals were clear. She thought his breath smelled of drink and the matter was reported to the police. Defendant was seen and admitted that he posed as a veterinary surgeon and added "I am sorry, I had been drinking."

A previous conviction in 1947 for posing as a medical practitioner and two other offences were reported.

Potts expressed his regret and said that his troubles always began when he had had too much to drink. He undertook to undergo medical treatment.

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## DUMFRIES AND GALLOWAY DIVISION'S DANCE FOR THE V.V.B.F.

Under the auspices of the Dumfries and Galloway Division of the B.V.A., a Dinner Dance was held in the George Hotel, Penrith, on February 29th, 1952. It was supported by a very large number of veterinary surgeons and their friends including members from Castle Douglas, Lanark, Kendal and Barnard Castle. The function was a great success socially and the organisers, Mrs. J. Reid and Mr. J. Barr, are grateful to all who supported it and to Pharmaceutical Specialities (May & Baker) Ltd., of Dagenham, Essex, for kindly donating special prizes for spot dances.

As a result, a cheque for £85 10s. has been forwarded to the Victoria Veterinary Benevolent Fund.

J. R.

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## ADDRESSES OF DISEASE-INFECTED PREMISES

**The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.**

Anthrax:

*Breconshire.*—Llangattock Park Farm, Crickhowell. (Carcase at: Slaughterhouse, Barn Field, Gilwern, Abergavenny) (Mar. 31st).

*Cheshire.*—Wheelock Hall Farm, Sandbach (April 1st) Zoological Gardens, Upton Wirral (April 2nd).

*Glam.*—Rhydypennan Farm, Llanishen, Cardiff (April 2nd).

*Herefordshire.*—Lustonbury Farm, Leominster (April 3rd).

*Kirkcudbright.*—Bishopton Farm, Kirkcudbright (April 3rd).

*Lanarks.*—Chapel Farm, Strathaven (Mar. 31st).

*Somerset.*—Godney Moor, Godney, Wells (Mar. 31st).

*Staffs.*—Billington Hall Farm, Billington, nr. Stafford (Carcase at: Slaughterhouse, Derrington, Stafford) (Mar. 31st).

Foot-and-Mouth Disease:

*Cheshire.*—Checkley Hall, Nantwich (April 6th).

*Essex.*—Abbott's Hall, Mistley (April 4th); Fristling Hall, Stock, Chelmsford (April 6th).

*Suffolk (E.).*— Fen Meadows, Woodside, Stowmarket (April 2nd); Castle Farm, Haughley, Stowmarket (April 4th).

Fowl Pest:

*Isle of Ely.*—Lamb's Farm, Purls Bridge, Wanea, March (April 1st).

*Lancs.*—Boundary Farm, Mawdesley, Ormskirk (Mar. 3rd).

*Staffs.*—15, New Street, West Bromwich; 18, Market Place, Great Bridge, Tipton (April 2nd); 11, Oak Avenue and 168, Claypit Lane, West Bromwich (April 3rd).

*Worcs.*—Tollhouse Farm, Mappleborough Green, Redditch (April 1st); Poole House, Purshall Green, Droitwich (April 2nd).

Swine Fever:

*Berks.*—"Maravale," Nine Mile Ride, Wokingham (April 3rd).

*Bucks.*—The Nursery, High Street, Colnbrook, Slough (April 1st); Anthony House, High Street, Colnbrook (April 3rd); Court Farm, Dorney (April 4th).

*Derbys.*—Well Spring Farm, Holymoorside, Chesterfield (April 1st).

*Kent.*—Hoath Farm, Bekesbourne Lane, Canterbury (April 2nd).

*Lancs.*—Stonehouse Farm, The Gore, Tyldesley, Manchester; Straightways, South New Road, Tarleton, Preston (April 1st); Mythop Grange Farm, Mythop, Weeton, Preston; Collup Gate Farm, Heywood (April 2nd); 9, Pine Street, Morecambe (April 3rd).

*Lincs (Holland).*—Hogsgate, Moulton, Spalding (April 2nd).

*Lincs (Lindsey).*—Church Farm, Bucknall, Lincoln (Mar. 31st).

*Middlesex.*—151, Manor Farm, Cottages, Charlton (April 3rd).

*Oxon.*—Evenload Nurseries, Eynsham (April 1st); Home Farm, Steeple Aston (April 3rd); Magdalen Lodge, Hook Norton, Banbury (April 4th).

*Rutland*.—Home Farm, South Luffenham (April 3rd).

*Salop*.—2, Polemere Cottages, Yockleton, Shrewsbury (April 3rd).

*Staffs*.—21, St. Chad's Road, Bilston (April 1st); Hilltop Farm, Brewood (April 3rd).

*Surrey*.—Wicken's Yard, Nutley Lane, Reigate (April 4th).

*Sussex (E.)*.—The Forge, Brook Street, Cuckfield (Mar. 31st).

*Warwicks*.—527, Bordesley Green, Birmingham, 9 (April 1st); Piggeries at Cook and Bear Bridge, Nuneaton; 61, Woodway Lane, Walsgrave-on-Sowe, Coventry (April 2nd); 241, Coppice Walk, Mount Estate, Monkspath, Solihull (April 4th).

*Yorks (N.R.)*.—Morton Grange, Nunthorpe, Middlesbrough (Mar. 31st); Spring House Farm, Gt. Broughton and Langurgh Buildings, Gt. Ayton, Middlesbrough (April 3rd).

*Worcs*.—Easemore Lane, Redditch (April 4th).

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## SHIRE HORSE SOCIETY: CROSS-BREEDING DEPLORED

Speaking at the annual meeting of the Shire Horse Society, Colonel A Falkner Nicholson, a Past-President, urged members (says the *Farmer and Stock-breeder*) "to breed Shires and not cross-bred Clydesdales." "Some may say the cross-bred is ideal, but we are not a cross-breeding society. We are ridiculed all over the country. Let us get back to where we were when this business began," he said. Following on the expression of an opposite view: "we can get cleaner legs and better joints by using the Clydesdale," Mr. W. H. Jones said that in the past the Society had gone to the extreme, encouraging the breeding of horses with too much weight. He added: "If the Shire horse is to survive we must not forget the weight, but we want an animal with clean limbs."

Later in the evening several leading members spoke at the dinner about the future of the Shire and what could be done to make the best of it. Mr. A. H. Clark, a stallion owner, wanted fees for service put up from the present 5 guineas to 20 guineas, the horses serving only about a quarter of the mares they do at present. He also thought the Society should give premiums to subsidise the stallion owner. Mr. H. T. L. Young, speaking as a commercial user, said he could no longer buy weighty geldings. Breeders had certainly done away with the hair, but had done away with the horse too. "We in the towns need the weighty gelding that leans in his collar and moves a load, not the very active animal that wears himself out," said Mr. Young.

Speaking on horses and tractors, Mr. W. J. Cumber emphasised that they were complementary. With the present cost of machinery, fuel and repairs, the horse could still do many jobs the more economically; he had even seen a tractor pulling a side-rake and that was a man doing a boy's job. "The horse is coming back—I feel stronger at heart about that than for years," said Mr. Cumber.

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## MEAT PARCELS FROM THE CONTINENT

The Board of Trade and the Ministry of Food permit travellers to bring into the United Kingdom without an import licence certain quantities of foodstuffs for their personal use, and many persons have taken advantage of these concessions to bring in small amounts of meat of various kinds.

Because of the risk of setting up disease among our own animals through the importation of infected meat, the Ministry of Agriculture and Fisheries points out that no meat other than fully cured bacon and ham and fully cooked meats (including tinned or canned products) may be brought from the Continent of Europe in this way.

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## U.S. BAN ON STOCK IMPORTS: LIVESTOCK EXPORT GROUP ANNOUNCEMENT

As a result of the United States of America having placed an embargo on the importation of all livestock and meat from Canada (following the outbreak of foot-and-mouth disease in Canada), the Veterinary Director-General for Canada has instructed that all cattle bought for shipment to importers in the U.S.A. must be retained in Britain until further notice.

In making this announcement, the Livestock Export Group add that "the position obtaining at present in regard to Great Britain is, therefore, that only cattle born and bred in Scotland or Northern Ireland and destined for Canada only may be shipped."

This is likely to mean that most of the animals bought at Perth for export to the United States of America must still be in this country, for all animals bound from Britain to U.S.A. must go via Canada, and as the outbreak occurred shortly after the Perth sales it is unlikely that any animals had time to complete their quarantine in this country before the ban was put on. At the February sales of Shorthorns at Perth Canada bought over £52,000 worth of animals and the United States bought nearly £20,000 worth of bulls and heifers.

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## "SURGICAL TRAVELLERS" VISIT THE R.V.C.

In its issue of April 5th the *British Medical Journal* records that a meeting to mark the jubilee of the Surgical Travellers' Club was held in London from March 26th to 29th. "The club was founded by Sir Heneage Ogilvie in 1927, and on the present occasion a presentation was made to Sir Heneage and Lady Ogilvie by the club to record its appreciation of all that they had done for the club during the last 25 years. At this meeting visits were made to St. Mary's, the Middlesex, Guy's, Great Ormond Street, 'Barts,' and to the Royal Veterinary College. A dinner was held at the College of Surgeons on Friday, March 28th. Among those who made speeches were Sir Heneage Ogilvie, Sir Stanford Cade, Mr. Dickson Wright, Mr. Geoffrey Keynes, Mr. Walter Mercer (President of the Royal College of Surgeons of Edinburgh), and Professor Norman Dott, who proposed Sir Heneage's health. Sir Heneage, in reply, reminded the club that they counted among their members 10 consultants to the armed Forces, four members of the council of the Royal College of Surgeons of England, and the President of the Royal College of Surgeons of Edinburgh."

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About 2,500 specialists from 65 countries will attend the sixth international grassland congress to be held in Pennsylvania, U.S.A., from August 17th to 23rd.—*Farmer & Stock-breeder*.

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The U.S.A. Department of Agriculture states that there were 12 per cent. fewer cows in the United States in 1950 than in 1945, but they produced nearly as much milk, averaging 500 lb. more a head than five years earlier.

# CORRESPONDENCE

*The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.*

## LIVESTOCK REARING: PROVISION OF PROTEIN AND VITAMIN D

Sir,—I am sorry if the phraseology I have used has led Mr. Stewart Macfarlane and perhaps other readers of *The Veterinary Record* to think that I am opposed to the increased use of dried grass: that is far from the truth.

My point is simply that concentration on the protein content of young grass has tended to make us forget other nutrients. So far as vitamin D is concerned, it certainly is possible to supply the vitamin in the form of fish-liver oils. On the other hand, can we be sure that the only differences between hay and dried grass lie in their fibre, carotene, protein and vitamin D contents? I should hesitate to say so, or to contend that such differences have no effect on the health of livestock. It is here again where economics come in. I quite agree with Mr. Macfarlane in his comments on the prices of foodstuffs, but I fear that our data are very often incomplete. One may easily produce "ration A," which is much cheaper than "ration B" if one does not have to include in the cost the price of the infertility, for example, which may be attached to the cheaper food. These are, indeed, very vexing problems, needing much attention.—Yours faithfully, JOHN T. ABRAMS, Royal Veterinary College and Hospital, Camden Town, London N.W.1. *April 4th*, 1952.

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## THE VETERINARY SURGEON'S TITLE

Sir,—The question of the veterinary surgeon's title is again under discussion and the usual "for" and "against" arguments are brought up. The medical and veterinary professions have each added a word to the language, *viz*., "doctored" and "vetted," and I hope you agree, sir, that you would prefer to be "vetted" by a doctor than be "doctored" by a vet.

There is another point: if the profession is foolish enough to take upon itself the title "doctor" the public will immediately have to find some distinguishing label and, of course, we will become cow doctors, dog doctors, etc., and even hen doctors; there might be even a few horse doctors about—no, let us beware!—Yours faithfully, ALEXANDER SUTHERLAND, Ministry of Agriculture and Fisheries, Junction Road, Kirkwall. *April 4th*, 1952.